

TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: sid@timcoengr.com



Test Report

Product Name: FM TRANSMITTER

FCC ID: TCFCN-FM01

Applicant:

CARNET KOREA CO. , LTD
382-5, GALSAN-DONG, BUPYEONG-GU
INCHEON
SOUTH KOREA

Date Receipt: 5/24/2005

Date Tested: 5/24/2005

APPLICANT: CARNET KOREA CO. , LTD

FCC ID: XXXCN-FM01

REPORT #: C\CARNET\1122KT5\1122KT5TestReport.doc

COVER SHEET

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FCC ID: TCFCN-FM01

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EXHIBITS INCLUDING:

BLOCK DIAGRAM
SCHEMATIC
LABEL SAMPLE
LABEL LOCATION
PARTS LIST
INSTRUCTION MANUAL
TEST SET UP PHOTO
EXTERNAL PHOTOS
INTERNAL PHOTOS

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EMC Equipment List

| Device | Manufacturer | Model | Serial Number | Cal/Char Date | Due Date |
|---|---------------------|----------|--------------------------|-------------------|----------|
| 3/10-Meter OATS | TEI | N/A | N/A | Listed 3/27/04 | 3/26/07 |
| 3-Meter OATS | TEI | N/A | N/A | Listed 1/13/03 | 1/12/06 |
| Biconnical Antenna | Eaton | 94455-1 | 1057 | CAL 3/18/03 | 3/18/05 |
| Biconnical Antenna | Eaton | 94455-1 | 1096 | CAL 10/1/01 | 10/1/03 |
| Biconnical Antenna | Electro- Metrics | BIA-25 | 1171 | CAL 4/26/01 | 4/26/03 |
| Blue Tower Quasi-Peak Adapter | HP | 85650A | 2811A01279 | CAL 4/15/03 | 4/15/05 |
| Blue Tower RF | HP | 85685A | 2620A00294 | CAL 4/27/04 | 4/27/06 |
| Preselector Blue Tower Spectrum Analyzer | HP | 8568B | 2928A04729 2848A18049 | CAL 4/15/03 | 4/15/05 |
| LISN | Electro- Metrics | ANS-25/2 | 2604 | CAL 10/9/01 | 10/9/03 |
| LISN | Electro- Metrics | EM-7820 | 2682 | CAL 3/12/03 | 3/12/05 |
| Log- Periodic Antenna | Eaton | 96005 | 1243 | CAL 5/8/03 | 5/8/05 |

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TEST PROCEDURES

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a HEWLETT PACKARD spectrum analyzer with a pre-selector. In the frequency range 10 kHz to 30 MHz the RBW was 10 kHz and from 30-1000 MHz the RBW of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz. The ambient temperature of the UUT was &temp& with a humidity of &humr&.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF = FS
33 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI C63.4-2003 Section 8.2.1 MEASUREMENT PROCEDURES: The EUT was placed on a non-conducting table 80 cm above the ground plane with the EUT located in the center of the table. With the antenna vertical a preliminary scan was done at 1 meters distance, the EUT was moved to a 3.0-meter distance and the antenna height varied and also placed in a horizontal position. The frequency was scanned from 9.0 kHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The EUT was measured in three (3) orthogonal planes. The unit was measured at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45 Newberry, Florida 32669.

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APPLICANT: CARNET KOREA CO. , LTD

FCC ID: TCFCN-FM01

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO.: 15.239

REQUIREMENTS: CARRIER FREQUENCY WILL NOT EXCEED 48 dBuV/m @ 3 METERS

OUT-OF-BAND EMISSIONS SHALL NOT EXCEED THE LEVEL OF
THE FUNDAMENTAL.

| | |
|-----------------|-------------------------|
| 30 to 88 MHz: | 40.00 dBuV/M @ 3 METERS |
| 88 to 216 MHz: | 43.50 dBuV/M |
| 216 to 960 MHz: | 46.02 dBuV/M |
| ABOVE 960 MHz: | 54.00 dBuV/M |

TEST DATA:

| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dBuV | Ant. Polarity | Coax Loss dB | Correcti on Factor dB | Field Strength dBuV/m | Margin dB |
|---------------------------|------------------------------|--------------------------|------------------|--------------------|--------------------------------|-----------------------------|--------------|
| 106.7 | 106.70 | 31.4 | H | 0.66 | 11.94 | 44.00 | 6.00 |
| 106.7 | 106.70 | 30.9 | V | 0.66 | 12.14 | 43.70 | 5.30 |
| 106.7 | 213.40 | 19.9 | V | 0.93 | 11.07 | 31.90 | 11.60 |
| 106.7 | 213.40 | 26.0 | H | 0.93 | 11.93 | 38.86 | 4.64 |
| 106.7 | 320.10 | 21.2 | H | 1.12 | 15.20 | 37.52 | 8.50 |
| 106.7 | 320.10 | 23.1 | V | 1.12 | 15.00 | 39.22 | 6.80 |
| 106.7 | 426.80 | 24.0 | H | 1.23 | 16.70 | 41.93 | 3.09 |
| 106.7 | 426.80 | 24.7 | V | 1.23 | 16.23 | 42.16 | 1.86 |
| 106.7 | 533.50 | 22.1 | H | 1.40 | 18.70 | 42.20 | 2.82 |
| 106.7 | 533.50 | 23.4 | V | 1.40 | 18.20 | 43.00 | 3.02 |
| 106.7 | 640.20 | 10.4 | V | 1.64 | 19.51 | 31.55 | 14.47 |
| 106.7 | 640.20 | 12.2 | H | 1.64 | 19.90 | 33.74 | 12.28 |
| 106.7 | 746.90 | 9.2 | V | 1.79 | 20.12 | 31.11 | 14.91 |
| 106.7 | 746.90 | 12.5 | H | 1.79 | 21.82 | 36.11 | 9.91 |
| 107.9 | 107.90 | 31.1 | V | 0.66 | 12.38 | 44.14 | 5.86 |
| 107.9 | 107.90 | 30.5 | H | 0.66 | 12.18 | 43.34 | 5.66 |
| 107.9 | 215.80 | 22.8 | V | 0.93 | 11.04 | 34.77 | 8.73 |
| 107.9 | 215.80 | 26.1 | H | 0.93 | 11.88 | 38.91 | 4.59 |

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APPLICANT: CARNET KOREA CO. , LTD

FCC ID: TCFCN-FM01

NAME OF TEST: RADIATION INTERFERENCE CONTINUED

RULES PART NO.: 15.239

REQUIREMENTS: CARRIER FREQUENCY WILL NOT EXCEED 48 dBuV/m @ 3 METERS

OUT-OF-BAND EMISSIONS SHALL NOT EXCEED THE LEVEL OF THE FUNDAMENTAL.

| | |
|-----------------|-------------------------|
| 30 to 88 MHz: | 40.00 dBuV/M @ 3 METERS |
| 88 to 216 MHz: | 43.50 dBuV/M |
| 216 to 960 MHz: | 46.02 dBuV/M |
| ABOVE 960 MHz: | 54.00 dBuV/M |

| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dBuV | Ant. Polarity | Coax Loss dB | Correction Factor dB | Field Strength dBuV/m | Margin dB |
|---------------------|------------------------|--------------------|---------------|--------------|----------------------|-----------------------|-----------|
| 107.9 | 323.70 | 12.7 | V | 1.12 | 14.85 | 28.67 | 17.35 |
| 107.9 | 323.70 | 14.1 | H | 1.12 | 15.20 | 30.42 | 15.60 |
| 107.9 | 431.60 | 11.8 | V | 1.23 | 16.23 | 29.26 | 16.76 |
| 107.9 | 431.60 | 14.4 | H | 1.23 | 16.70 | 32.33 | 13.69 |
| 107.9 | 539.50 | 21.5 | V | 1.42 | 18.20 | 41.12 | 4.90 |
| 107.9 | 539.50 | 21.8 | H | 1.42 | 18.70 | 41.92 | 2.10 |
| 107.9 | 647.40 | 9.4 | V | 1.65 | 19.72 | 30.77 | 15.25 |
| 107.9 | 647.40 | 11.2 | H | 1.65 | 19.90 | 32.75 | 13.27 |

The spectrum was scanned from 10 kHz to 1000 MHz.

SAMPLE CALCULATION: FSdBuV/m = MR (dBuV) + ACFdB.

TEST PROCEDURE: The procedure used was ANSI C63.4-2003 Section 8.2. The frequency was scanned from 9.0 kHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The EUT was measured in three (3) orthogonal planes. The unit was measured at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45 Newberry, Florida 32669.

TEST RESULTS: THE UNIT DOES MEET THE FCC REQUIREMENTS.

PERFORMED BY: NAM NGUYEN

DATE: 5/24/2005

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APPLICANT: CARNET KOREA CO. , LTD

FCC ID: TCFCN-FM01

NAME OF TEST: OCCUPIED BANDWIDTH

RULES PART NO.: 15.239

REQUIREMENTS: Emissions from the device shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

THE GRAPH ON THE FOLLOWING PAGE REPRESENTS THE EMISSIONS TAKEN FOR THE DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the above photo was taken. The vertical scale is set to -10 dBm per division. The horizontal scale is set to 10 kHz per division.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: NAM NGUYEN

5/24/2005

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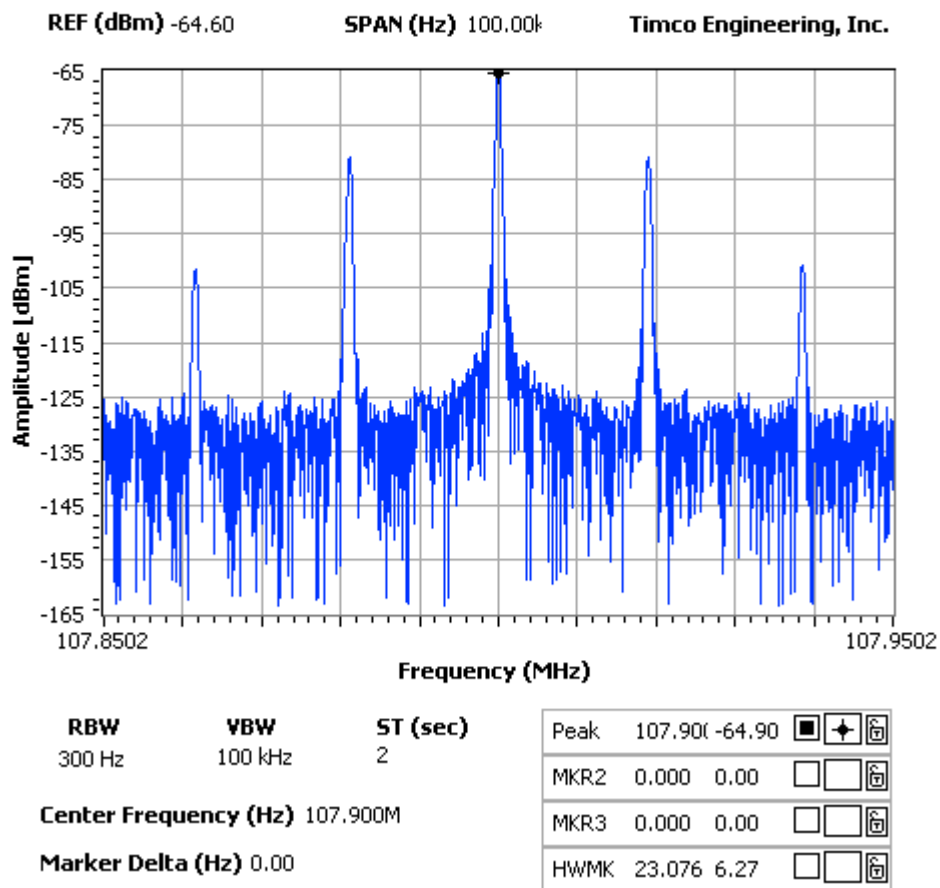
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APPLICANT: CARNET KOREA CO. , LTD
FCC ID: TCFCN-FM01
NAME OF TEST: OCCUPIED BANDWIDTH PLOT

NOTES:

CARNET KOREA CO. , LTD - Product Name: FM TRANSMITTER
OCCUPIED BANDWIDTH PLOT



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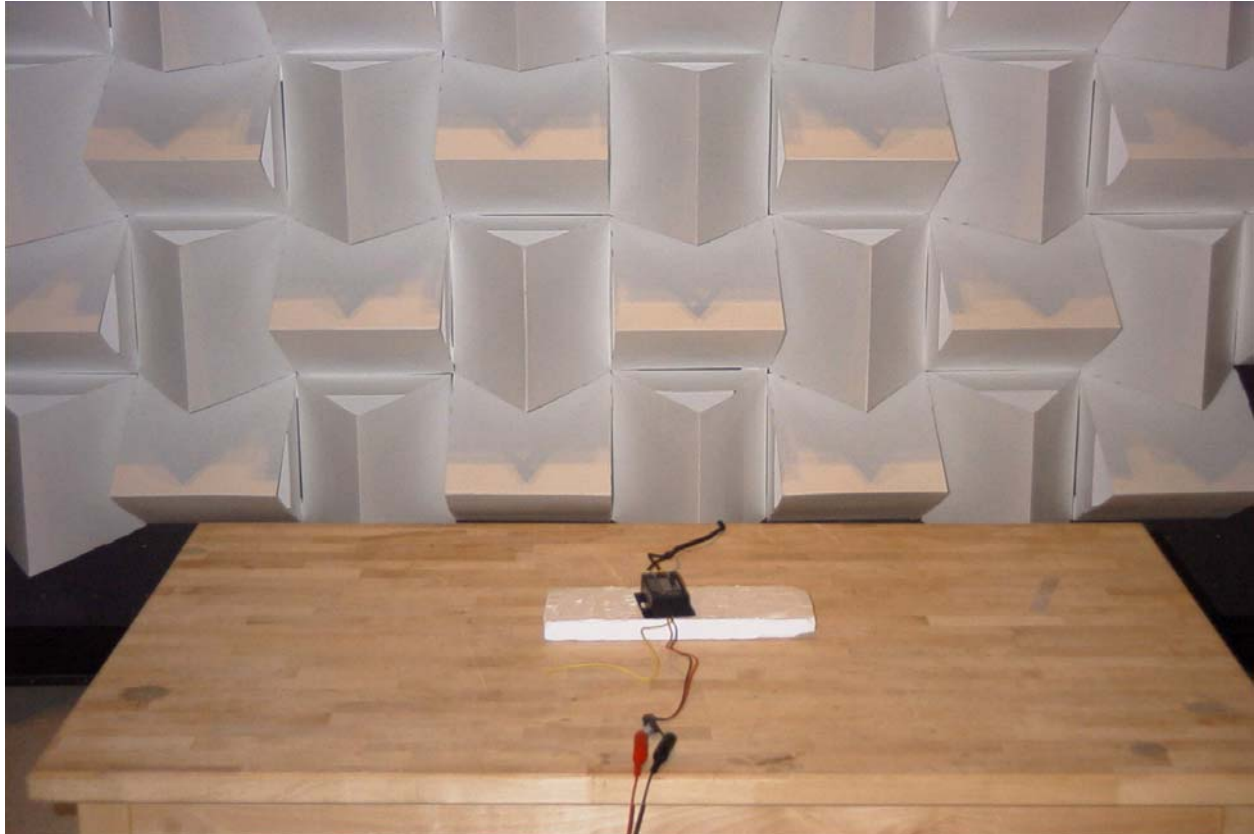
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FCC ID: TCFCN-FM01

NAME OF TEST: TEST SETUP PHOTO



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